IN-SITU STRAW CONTAINER

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a liquid container. More particularly, the present invention provides a liquid container that conveniently integrates an in-situ straw.

Description of the Related Art

[0002] Drink products are sold commercially in various packaging containers. Those packaging containers for liquid products are generally made of plastics, paper material, glass, or metal such as aluminum cans. Among those different kinds of packaging containers that are present in the market, plastic containers more particularly have the advantages of being cheap, light, and easily fashionable because they are fabricated by molding.

[0003] In the category of ready-to-drink products, liquid containers are usually smaller and enclose less product so that the consumer can consume and finish the drink directly from the packaging container. The liquid container is usually provided with an external opening covered with a cap and/or sealed by a covering after the liquid product is enclosed therein. To drink the liquid product, the external opening is exposed by removing the cap and/or piercing the covering. The consumer then may drink either directly from the exposed external opening of the liquid container or via a straw introduced through the opening.

[0004] With the traditional liquid container, drinking directly from the opening in the packaging container without a straw may inconveniently cause leakage and partial

loss of the drink. Moreover, when the consumer, for example, is driving a car while drinking the liquid product enclosed in the liquid container without any straw, he or she must lean the head backwards for the drink to flow out, which may be dangerous and cause a car accident. However, when a straw is used, it may happen that the size of the straw is not adequate to the size of the liquid container. The straw then may drop into the liquid container, or the liquid product may not be entirely drunk through the straw because the straw is too short when the level of the liquid product in the container is substantially low.

[0005] When a liquid product enclosed in a container of greater volume capacity such as a 2000ml-capacity bottle is poured, for example, into a glass, the container must be carefully inclined such that the liquid product can flow out without an excessive flow rate. Otherwise, the glass into which the liquid product is poured in may tumble under the flow force.

[0006] Therefore, a liquid container that can overcome at least the above inconveniences is desired.

SUMMARY OF THE INVENTION

[0007] An aspect of the present invention therefore is to provide an in-situ straw container for liquid product that overcomes the above problems by incorporating a straw member therein.

[0008] To attain at least the foregoing objectives, the in-situ straw container of the present invention principally comprises a container body and a pipe integrated and attached to the container body. The container body is the part of the in-situ straw container that encloses the liquid product. An interior volume of the pipe is substantially

separated from an interior volume of the container body by a sidewall. The interior volume of the pipe communicates with the interior volume of the container body via at least an internal opening located proximate to a bottom of the container body. The liquid product within the container body can thereby flow out by suction through the pipe.

[0009] The pipe of the in-situ straw container of the present invention may be constructed according to various arrangements. In one arrangement, the pipe may protrude over the container body so that the consumer can drink the liquid product directly from the pipe serving as a straw member.

[0010] In another arrangement, the consumer can drink the enclosed liquid product via punching through an external opening of the pipe by means of a straw head. The size of the straw head can be substantially reduced because the pipe incorporated in the in-situ straw container already provides the principal and adequate straw length.

[0011] Still in another arrangement, the pipe may protrude over the container body and terminate into a manually removable cover member that externally closes the pipe. To drink the enclosed liquid product, the cover member is manually removed, the liquid product then can be drunk through the pipe serving as a straw. The cover member can be re-disposed upside down over the opened pipe to cover the pipe.

[0012] Still in another arrangement, the in-situ straw container further may incorporate a second external opening. When drinking the enclosed liquid product, the first and second external openings are externally exposed. The liquid product then can be drunk by suction through the first external opening while the second external opening allows exterior air to enter the in-situ straw container, thereby preventing contraction of the container body due to external pressure.

[0013] In accordance with the above-mentioned and other objectives, the present invention further provides a liquid container that comprises a container body, a first pipe, and a second pipe, both first and second pipes are integrated and attached to the container body. The container body encloses a liquid product therein. The first pipe includes a first external opening through which the liquid product within the container body can flow out by suction, and the second pipe includes a second external opening through which exterior air penetrates the liquid container as the enclosed liquid product is sucked out. A sidewall substantially separates an interior volume of the first pipe from an interior volume of the container body. At least an internal opening is formed proximate to a bottom of the container body to allow the liquid product within the container body to flow out through the first pipe via suction. The interior volume of the second pipe substantially communicates with the interior volume of the container body except a top portion between the container body and the second pipe where a top sidewall is located. The container body may further incorporate a third external opening, substantially larger than the first and second external openings, through which the enclosed liquid product can be poured out by inclination of the liquid container.

[0014] The above-described liquid container may be used in various ways. In one example of utilization, the first pipe may serve as a straw through which the liquid product flows out by suction through the first external opening of the first pipe.

[0015] In another example of utilization, the liquid product is poured out through either the third external opening of the container body or the second external opening of the second pipe by simply inclining the liquid container. Pouring out the enclosed liquid product through the second external opening of the second pipe is performed with a flow

rate that is substantially less than the flow rate through the third external opening of the container body. As a result, excessive output of the liquid product is prevented.

[0016] It is to be understood that both the foregoing general description and the following detailed description are exemplary, and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The accompanying drawings are included to provide a further understanding of the invention, and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention. In the drawings,

[0018] FIG. 1 and FIG. 2 are respectively perspective and cross-sectional views illustrating an in-situ straw container according to a first embodiment of the present invention;

[0019] FIG. 3 and FIG. 4 are respectively perspective and cross-sectional views illustrating an in-situ straw container according to a second embodiment of the invention;

[0020] FIG. 5, FIG. 6, and FIG. 7 are various views illustrating an in-situ straw container according to a third embodiment of the present invention;

[0021] FIG. 8 is a perspective view illustrating a variant example of an in-situ straw container according to the third embodiment of the present invention;

[0022] FIG. 9 and FIG. 10 are respectively a perspective view and a cross-sectional view illustrating an in-situ straw container according to a fourth embodiment of the present invention; and

[0023] FIG. 11 is a perspective view schematically illustrating a variant example of the in-situ straw container of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0024] The features and advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings. The following detailed description is only illustrative of various specific structures that embody the present invention, and does not limit the scope of the invention. Wherever possible, like reference numerals refer to like elements or parts unless otherwise illustrated.

[0025] Referring to FIG. 1 and FIG. 2, a perspective view and a cross-sectional view taken along cross-section I of FIG. 1 schematically illustrate an in-situ straw container according to a first embodiment of the present invention. As illustrated in FIG. 1 and FIG. 2, the in-situ straw container of the invention comprises a container body 10 and a pipe 14 integrated to the container body 10. The pipe 14 is substantially prolonged to the bottom of the container body 10, and protrudes over the top 18 of the container body 10. The container body 10 may enclose, for example, a liquid product. The term "liquid product" broadly refers to any product that can flow. As shown in FIG. 2, the interior volume of the pipe 14 is substantially separated from the interior volume of the container body 10 by a sidewall 30. Nevertheless, the interior volume of the pipe 14 communicates with the interior volume of the container body 10 via at least an opening 34 located proximate to an internal bottom of the container body 10. The liquid product can flow thereby from the container body 10 through the pipe 14 by suction. The thus-arranged pipe 14 constitutes an in-situ straw member within the in-situ straw container.

The pipe 14 terminates into an opened end that may be sealed by a covering 22 and/or covered by a cap 26.

[0026] The in-situ straw container as described above may be fabricated by various methods depending on the material used. One specific method may include, for example, integrally fabricating the container body 10, the sidewall 30, and the pipe 14 made of plastics in one single body by blow molding, wherein the sidewall 30 is formed along with the molding of the container body 10 and the pipe 14. Additionally, an external opening (not shown) may be further arranged on, for example, the container body 10 to allow the fill of the liquid product in the container body 10. The external opening is sealed after the fill is completed (not shown). According to another manufacture method, the container body 10 and the pipe 14 may be first integrally formed in one element by blow molding without the sidewall 30. The interior volumes of both container body 10 and pipe 14 thus freely communicate with each other from the top to the bottom of the container body 10. Subsequently, after the liquid product is filled in the container body 10, apposed portions between the container body 10 and pipe 14, except a small portion proximate to the bottom of the container body 10, are longitudinally flattened and inter-welded to form the sidewall 30. This inter-welding may be accomplished via various methods such as heat sealing or ultra-sonic welding, for example. After inter-welding, an opening 34 is thus created inside the small portion proximate to the bottom of the container body 10 that is not inter-welded. Liquid level marks, which can be formed by, for example, direct molding or color ink printing, may be further provided on either the container body 10 or pipe 14 to indicate the volume of liquid product that remains in the in-situ straw container.

[0027] To drink the liquid product enclosed in the container body 10, the user removes the cap 26 and/or the covering 22 (the covering 22 may be possibly removed via punching). With the user's mouth put in contact with the end opening of the pipe 14, the liquid product within the container body 10 flows out of the in-situ straw container by suction through the pipe 14.

[0028] Referring to FIG. 3 and FIG. 4, a perspective view and a cross-sectional view schematically illustrate an in-situ straw container according to a second embodiment of the present invention. As illustrated in FIG. 3 and FIG. 4, the in-situ straw container may comprise a container body 10 and a pipe 14 such as previously described. However, the pipe 14 terminates into a manually removable top cover 36. The cover 36 is provided with grooves 44 thereon, and may be integrally formed in one body with the pipe 14. The cover 36 connects the pipe 14 via a neck 40. The neck 40 is arranged in such a manner that the cover 36 can be easily separated from the pipe 14 by manual operation to open the pipe 14. To facilitate the separation of the cover 36 from the pipe 14, various arrangements can be envisaged, including a precut of the neck 40 having a diameter smaller than that of the pipe 14, for example.

[0029] To drink the liquid product enclosed in the in-situ straw container, the user separates the cover 36 from the pipe 14. After having drunk the liquid product via the pipe 14, the user can close the pipe 14 by means of the cover 36. The cover 36 is shaped in a manner to be readily inserted upside down in the pipe 14 with the grooves 44 encroaching over the pipe 14 opening rim, as shown in FIG. 4.

[0030] Referring to FIG. 5 and FIG. 6, a perspective view and a cross-sectional view schematically illustrate an in-situ straw container according to a third embodiment of the present invention. Similar to the previous description, an in-situ straw container

comprises a container body 100 and a pipe 104. However, the container body 100 further comprises another pipe 128 that is integrated to the container body 100 and spaced apart from the pipe 104. As illustrated in FIG. 5, the pipe 128 is preferably located opposite to the pipe 104 on the container body 100, and can be, for example, cylindrically shaped similar to the pipe 104 (other shapes are also possible). The pipe 128 terminates into an external opening 132 through which exterior air can penetrate into the in-situ straw container while the liquid product within the container body 100 is drunk. The pipe 104 terminates into an external opening 112 through which the enclosed liquid can be drunk by suction. The openings 112, 132 may be sealed via blow molding. Sealing of openings 112, 132 by blow molding may be accomplished, for example, along with the molding of the container body 100 and the pipes 104, 128. During blow molding, various grooved shaped-marks can be formed on the sealing of the external openings 112, 132. A preferable shape of the sealing of the external openings 112, 132 is a cross shape as shown in FIG. 5. This preference is explained further on.

[0031] As shown in FIG. 6, a sidewall 136a substantially separates the interior volume of the pipe 104 from the interior volume of the container body 100. At least an internal opening 134 is arranged proximate to a bottom of the container body 100 to allow the interior volume of the container body 100 to communicate with the interior volume of the pipe 104. Unlike the pipe 104, the interior volume of the pipe 128 substantially communicates with the interior volume of the container body 100. Only a top portion of the in-situ straw container between the pipe 128 and the container body 100 is formed with material to form a top sidewall 136b that is substantially smaller than the sidewall 136a. Various methods can be used to fabricate the above in-situ straw container. In one example of manufacture, the container body 100, pipes 104, 128, sidewall 136a, and top

sidewall 136b can be integrally fabricated in one single element by molding. In another example of manufacture, the container body 100, and pipes 104, 128 can be first integrally shaped via molding. After molding is achieved, the interior volumes of the container body 100 and the pipes 104, 108 freely communicate with one another. Subsequently, apposed portions between the container body 100 and respectively pipes 104, 128 are longitudinally flattened and inter-welded through various processes such as heat-sealing or ultra-sonic welding to form the sidewall 136a and the top sidewall 136b, respectively.

[0032] To drink the liquid product, the user punches through the external opening 112 by means of a straw head 124a. The term "straw head" means a portion of hollow tube that may be used to punch through the sealing of the external opening 112 and be fixedly positioned in the pipe 104. The user further punches through the external opening 132 by means of, for example, another straw head 124b. The liquid product within the container body 100 then can be drunk by suction through the straw head 124a inserted in the external opening 112 of the pipe 104 while exterior air penetrates the in-situ straw container through the straw head 124b inserted in the external opening 132.

[0033] In the present embodiment, the size of the straw head 124a is substantially reduced because the pipe 104 already provides the principal and adequate straw length. As a result, problems that are related to dimensional mismatch between a separated straw and a conventional container advantageously are eliminated. Moreover, with a grooved and cross-shaped sealing of the external openings 112, 132, the straw heads 124a, 124b do not slip when punching is performed. The external opening 132 allows exterior air to enter the in-situ straw container as the liquid enclosed flows out by suction through the

pipe 104. As a result, the container body 100 does not contract due to external air pressure as the liquid enclosed is progressively sucked out through the pipe 104.

[0034] Additionally, an external opening 108 substantially larger than the external openings 112, 132 may be optionally provided on the container body 100, wherein the external opening 108 further may be sealed by a covering 116 and covered with a cap 120. The external opening 108 may be used to fill the liquid product in the in-situ straw container, or rapidly pour out the enclosed liquid with a greater flow rate. Alternatively, the user can also pour out the enclosed liquid through the straw head 124b inserted in the external opening 132 of the pipe 128 with a lower flow rate.

[0035] Preferably, the cap 120 should be sufficiently high to allow the arrangement of the straw heads 124a, 124b therein when the cap 120 closes the external opening 108, as shown in FIG. 7.

[0036] In a variant structure of the in-situ straw container of the previous embodiment, the pipes 104, 128 may protrude over the container body 100, as shown in FIG. 8. With such an arrangement, the user can drink the enclosed liquid product directly by suction through the pipe 104, and the use of straw heads 124a, 124b is not needed. The sealing of the external openings 112, 132 of the pipes 104, 128 can be arranged, for example, such as described in the previous embodiments with reference to FIG. 1 and FIG. 3 to provide easy opening.

[0037] Referring to FIG. 9 and FIG. 10, a perspective view and a cross-sectional view schematically illustrate an in-situ straw container according to a fourth embodiment of the present invention. The in-situ straw container comprises a container body 200 and a pipe 204, wherein the interior volume of the container body 200 and the interior volume of the pipe 204 communicate with each other via an internal opening 234, as shown in

FIG. 10. The pipe 204 terminates into an external opening 210, and the container body 200 includes another external opening 208 larger than the external opening 210 of the pipe 204, wherein the external opening 208 communicates with the interior volume of the container body 200. As shown in FIG. 9 and FIG. 10, the pipe 204, serving as an in-situ straw member, can be compliant with the profile of the container body 200. A profile-compliant sidewall 236 is formed in accordance with the profile of the pipe 204 so as to separate the interior volume of the pipe 204 from the interior volume of the container body 200.

[0038] To drink the product enclosed within the in-situ straw container, the user first removes a cap 224 that covers the external opening 208 of the container body 200 and the external opening 210 of the pipe 204. If the user wants to drink the enclosed liquid product directly from the in-situ straw container, he or she further punches through the covering 212 which covers the external opening 210 of the pipe 204 with a straw head 220 that is provided inside the cap 224, for example. The user then can drink the enclosed liquid product by sucking through the straw head 220 inserted in the pipe 204. The size of the straw head 220 can be substantially reduced, because the pipe 204 already provides the principal and adequate straw length. As a result, conventional problems related to mismatch between the straw size and the container size are eliminated. Alternatively, the user also may remove a covering 212 which covers the opening 208 and pour the enclosed liquid product into, for example, a glass, through the external opening 208. The liquid thus can be poured out with a greater flow rate.

[0039] In summary, the foregoing description of embodiments and examples of the present invention reveals at least the following advantages. By simply arranging a pipe which interior volume communicates with the interior volume of a container body

that encloses the liquid product, the liquid container of the present invention advantageously incorporates a straw member therein. The in-situ straw container of the present invention thereby eliminates the need of conventionally separated straws and related inconveniences such as mismatch between the size of the container size and the size of the straw. Moreover, the in-situ straw container may further integrate another pipe additional to the pipe serving as straw member. The additional pipe has an external opening through which exterior air enters the in-situ straw container as the enclosed liquid product is sucked out through the straw member. When drinking, container body contraction due to external pressure can be thereby favorably prevented.

[0040] It will be apparent to those skilled in the art that various modifications and variations can be made to the specific structures of the present invention as illustrated in the above description without departing from the scope or spirit of the invention. For example, FIG. 11 illustrates a variant structure of the in-situ straw container of the invention where the container body may be possibly comprised of two parts disposed at opposite sides of the pipe straw member. In view of the foregoing, it is therefore intended that the present invention cover modifications and variations of this invention provided they fall within the scope of the following claims and their equivalents.